### ENGINE COOLING

Cooling is provided by air passing over the cooling fins on the engine cylinder head and cylinder. It is very important to keep these fins free from buildup of dirt, oil, grease and other foreign matter. Brush out the fins with a whisk broom or small stiff paint brush.

#### CAUTION

Remember, these fins are thin in order to dissipate heat and may be damaged if struck too hard.

# SERVICING ENGINE IN FRAME

The following components can be serviced while the engine is mounted in the frame (the vehicle's frame is a great holding fixture for breaking loose stubborn bolts and nuts):

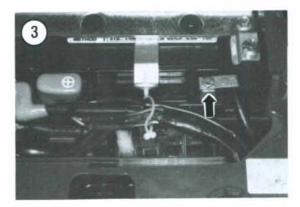
- a. Carburetor.
- b. Kickstarter.
- c. Alternator.
- d. Both clutch assemblies.
- e. External shift mechanism.
- f. Starter and starter gears.

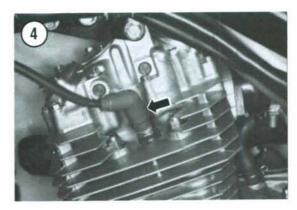
#### **ENGINE**

### Removal/Installation

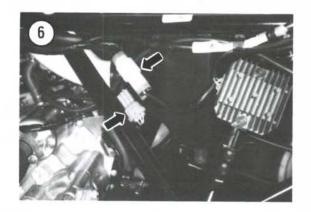
- 1. Drain the engine oil as described in Chapter Three.
- 2. Remove the seat.
- 3. Remove the bolts (A, Figure 2) and remove the battery box cover (B, Figure 2).
- 4. Disconnect the battery negative lead (Figure 3).
- Remove the fuel tank as described in Chapter Seven.
- Remove the exhaust system as described in Chapter Seven.
- Remove the carburetor as described in Chapter Seven.
- 8. On 4-wheel drive models, perform the following:
  - a. Drain the front gear case oil as described in Chapter Three.
  - Remove the front drive shaft as described in Chapter Ten.
  - Remove the front gear case assembly as described in Chapter Ten.





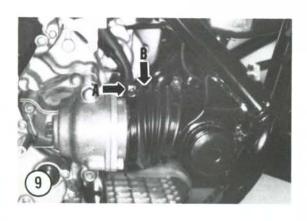


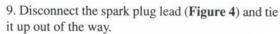




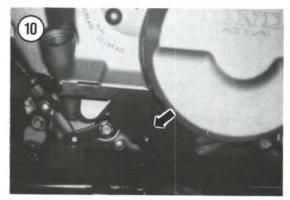


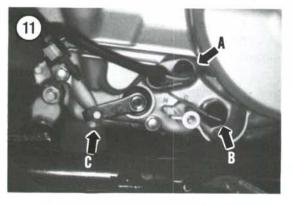






- 10. Remove the starter (A, **Figure 5**) as described in Chapter Nine.
- 11. Remove the engine ground strap (B, Figure 5).
- 12. Disconnect the alternator and the pulse generator electrical connectors (**Figure 6**).
- 13. Remove the bolts securing the right-hand foot peg assembly (**Figure 7**) and remove the right-hand foot peg assembly.
- 14. Remove the clamping bolt securing the gearshift lever and remove the gearshift lever (**Figure 8**).
- 15. Loosen the clamping screw (A, Figure 9) on the drive shaft rubber boot (B, Figure 9) and move the boot back away from the engine.
- 16. Disconnect the crankcase breather hose from the engine.
- 17. Remove the bolt securing the switch cover (**Figure 10**) and remove the cover.
- 18. Disconnect the neutral/reverse (A, **Figure 11**) electrical connectors and the oil pressure switch (B, **Figure 11**) connector.
- 19. Disconnect the reverse lockout cable bracket and cable (C, **Figure 11**) from the engine.





#### NOTE

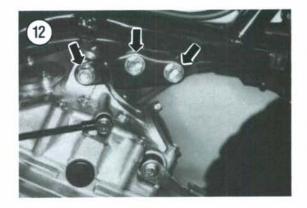
If you are just removing the engine and are not planning to disassemble it, do not perform Step 20. The engine assembly is small enough that external components can be left on for engine removal.

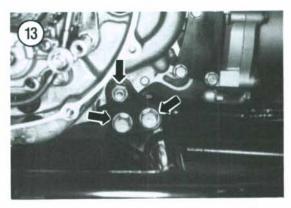
- 20. If the engine is going to be disassembled, remove the following parts:
  - Remove the alternator as described in Chapter Eight.
  - Remove the starter gears as described in this chapter.
  - Remove both clutch assemblies as described in Chapter Five.
  - Remove the kickstarter assembly as described in this chapter.
  - Remove the external shift mechanism as described in Chapter Six.
- 21. Loosen the front clamp on the universal joint boot and move the boot back off the output shaft housing.
- Take a final look all over the engine to make sure everything has been disconnected.

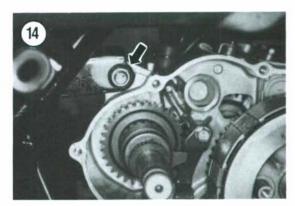
### CAUTION

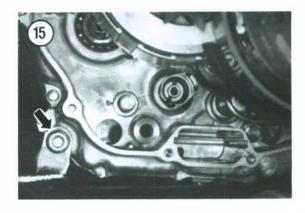
The following steps require the aid of a helper to safely remove the engine assembly from the frame.

- 23. Remove the engine front upper hanger bolts and nuts (**Figure 12**) and remove the hanger plates.
- 24. Remove the bolts and nuts securing the engine front lower hanger plates (**Figure 13**) on each side and remove the hanger plates.
- 25. Remove the nut (**Figure 14**) and the upper rear through bolt from the right-hand side. Don't lose the spacers on the bolt.
- Remove the nut and the lower rear through bolt (Figure 15) from the right-hand side.
- 27. Using a screwdriver, disengage the drive shaft's universal joint from the output shaft. Move the universal joint over to one side so it will not re-engage with the output shaft in the next step.
- 28. On the upper right-hand side of the frame, move the cables and hoses up and out of the way so they will not get snagged during engine removal.
- 29. Pull the engine slightly forward and out of the right-hand side of the frame. Take it to a workbench for further disassembly.









- 30. Install by reversing these removal steps while noting the following:
  - Tighten the engine mounting bolts to the torque specifications in Table 2.
  - Apply a light coat of molybdenum disulfide grease to the splines of the output shaft and the universal joint prior to engaging these 2 parts.
  - c. Fill the engine and the front drive case, on 4-wheel drive models, with the recommended type and quantity of oil as described in Chapter Three.
  - d. Adjust the clutch as described in Chapter Three.

e. Start the engine and check for leaks.

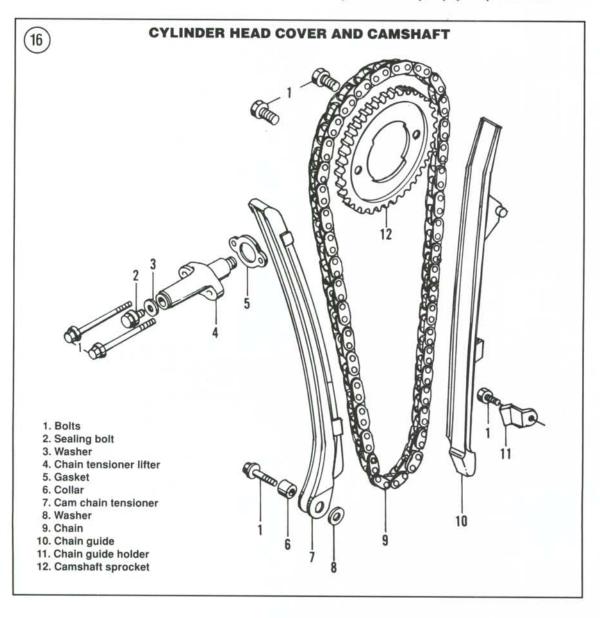
## CYLINDER HEAD COVER AND CAMSHAFT

Refer to Figure 16 for this procedure.

# Cylinder Head Cover and Camshaft Removal

#### NOTE

The cylinder head cover and camshaft can be removed with the engine in the frame. The majority of this procedure is



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